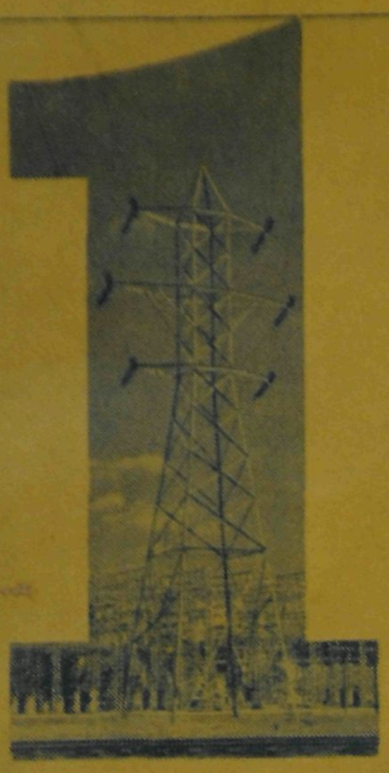
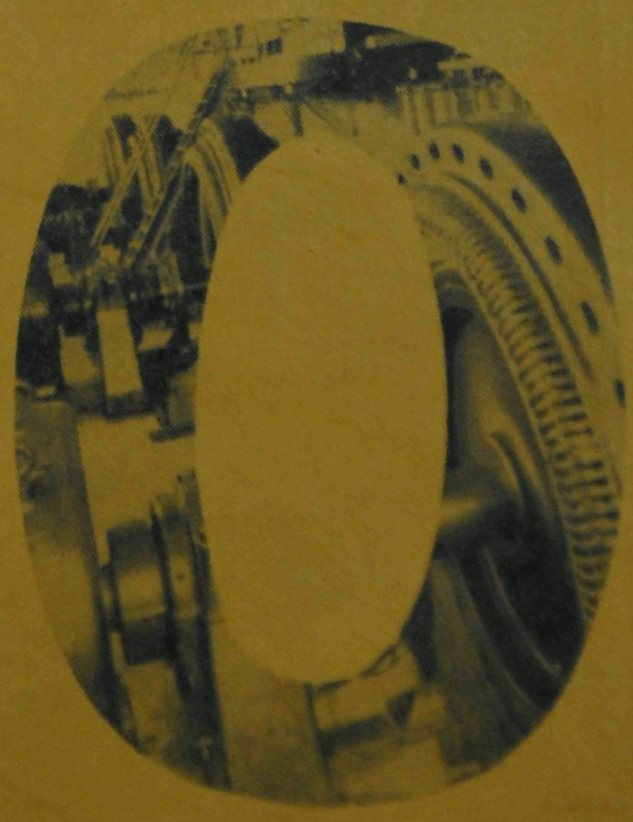
ELECTRICAL SHOW



MARCH 28 - 29 - 30



UNIVERSITY OF ILLINOIS

ARTHUR CUTTS WILLARD, B. S., D. Eng., LL. D.,
President, University of Illinois

•

THE ELECTRICAL SHOW, put on by the students in electrical engineering and engineering physics, involves thoughtful planning, careful management of finances, publicity, and exhibits, and weeks of hard work on the part of the students. In turn it provides education in the latest developments in electrical engineering as well as entertainment for the spectators. The students' work in the preparation and management of this show develops their initiative and judgment perhaps even more effectively than can be accomplished through many class room programs.

I am sure the spectators will be well entertained at this 1940 Electrical Show and will leave with a better understanding and appreciation of the applications of science to industry.

A. C. WILLARD,
President

1940 Electrical Show

UNIVERSITY OF ILLINOIS
Urbana, Illinois

March 28, 29, and 30

Electrical Engineering Laboratories and Physics Building

•

FACULTY ADVISERS

Professor E. B. Paine, Head of E. E. Department

Professor Morgan Brooks (Emeritus)
Research Professor J. T. Tykociner
Professor A. R. Knight
Professor H. A. Brown
Professor H. J. Reich
Professor J. O. Kraehenbuehl
Asscoiate Professor E. H. Waldo
Associate Professor E. A. Reid
Associate Professor C. A. Keener
Assistant Professor M. A. Faucett
Assistant Professor C. E. Skroder
Assistant Professor L. B. Archer
Associate L. L. Smith
Associate H. N. Hayward
Associate W. J. Warren
Instructor G. H. Fett
Instructor H. W. Horn
Instructor M. S. Helm
Instructor J. C. Mace
Instructor J. H. Smith
Instructor G. R. Peirce
Assistant Robert Gibson
Research Assistant Louis R. Bloom
Glass Blower Robert N. Waggener
Mechanician G. H. Powers

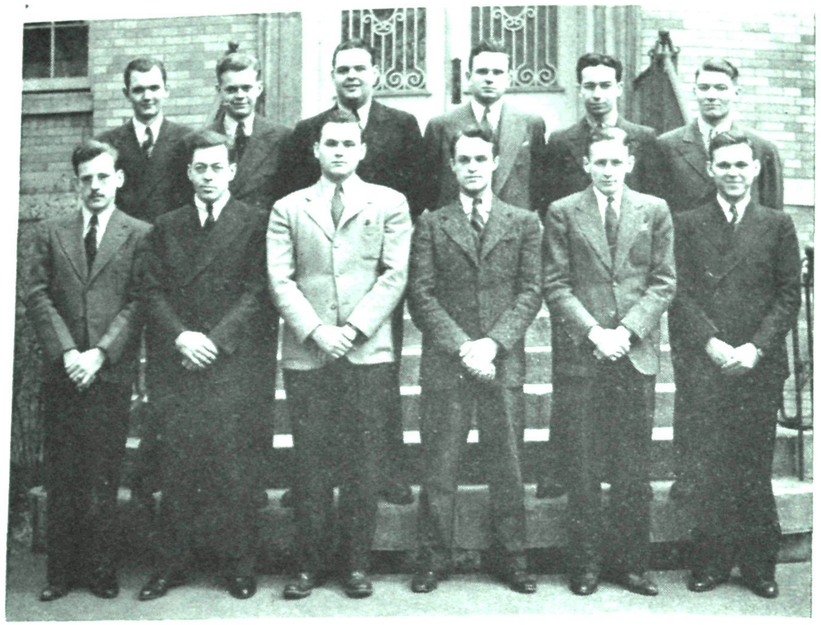
Professor F. W. Loomis, Head of the Physics Department

Professor P. G. Kruger
Professor F. R. Watson
Professor C. T. Knipp (Emeritus)
Associate Professor G. M. Almy
Associate Professor J. H. Bartlett
Associate Professor H. M. Mott-Smith
Associate Professor R. F. Paton
Associate Professor W. F. Schulz
Associate Professor E. H. Williams
Assistant Professor L. H. Haworth
Assistant Professor M. Goldhaber
Assistant Professor R. J. Richardson
Assistant Professor R. Serber
Associate E. B. Jordan
Associate E. M. Lyman
Associate J. H. Manley
Dr. D. W. Kerst
Assistant M. P. Vore
Assistant Mechanician W. C. Deem
Mechanician E. Englund
Mechanician C. W. Fieg
Assistant Mechanician C. Van Holland
Glassblower A. H. Colbey

•

BOARD OF MANAGERS

Robert M. Sinks—Chairman
Frank W. Linder—Business Manager
William Welbourne—Assistant Business Manager
Norman C. Colby—Treasurer
J. L. Murphy—Chief Engineer
Francis K. Tallmadge—Physics Department
Merlin J. Adams—Publicity
Robert A. Nelson—Exhibits
Jack D. Shnable—Personnel
William W. Witort—Programs
Henry Duszak—Electrician
William F. Tracy—Construction



BOARD OF MANAGERS OF THE 1940 ELECTRICAL SHOW

Left to right, front row: Murphy, Tallmadge, Shnable, Duszak, Linder, Tracy.
Second row: Witort, Nelson, Adams, Sinks, Colby, Welbourne.

IN APPRECIATION

As a cooperative enterprise, the Electrical Show depends upon the combined efforts of Students, Faculty, Commercial contributors, and the general public. The long term planning and the vision of students who started their exhibits months before the show deserves special mention. The advice of the members of the Faculty was invaluable to those less experienced and learned. Commercial Companies were always generous in the contribution of equipment and materials, most of which could not have been obtained otherwise. The general public, by their interest in past shows, has furnished the incentive to make this show one of the best ever held.

Not wishing to single out any of these independent factors which made for the success of the show, but rather appreciating that each was necessary, the Board of Managers wishes to pay tribute to all who contributed time, abilities, and properties. To the general public, your continued interest and attendance makes it possible for us to present the shows on such a large scale. Thank you for your support!

ROBERT M. SINKS,
General Manager

Electrical Engineering Exhibits

INSTRUCTIONS FOR SEEING THE SHOW

Exhibits for the show are located in four buildings, the Electrical Engineering Laboratory, the Illumination Laboratory, the High Voltage Laboratory, and the Physics Building. You will be admitted to each of these buildings on the same ticket; your ticket will be punched as you enter each building. Performances are going on all the time in the Electrical Engineering Laboratory and in the Physics Building, while performances will be given in the Illumination Laboratory and in the High Voltage Laboratory at regular intervals. You do not have to go through the buildings in any particular order; go to the one which is least crowded.

A main Public Address system has been installed between each of the four buildings, so that announcements will reach everyone present at the show. If you are lost, or if you seek information concerning the location of exhibits, do not hesitate to ask the men in charge of exhibits. They will be glad to help you!

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

The University of Illinois Student Branch of A. I. E. E. is an organization composed of students who are enrolled in the Electrical Engineering Department. The purpose of the Student Branch is to promote various professional activities among the Electrical Engineering students. One of its most significant duties is that of beginning the organization of the Electrical Show by holding, early in the fall, the election of the Board of Managers. It is the job of the board to complete the organization of the show, and to co-ordinate the activities in the Electrical Engineering and Physics Departments.

1. **Floating Dishpan:**
   See gravitation defied! Was Newton right? Feel free to look this apparatus over good, and then see if you can explain it. Absolutely no strings attached. S. J. Robb '40, R. A. Nelson '40.

2. **Micro Switch Exhibit:**
   Here you may see a new development in Electrical Engineering as applied to electrical switching. These switches operate in less than two thousandths of an inch, and with a pressure differential of four ounces. They have a number of commercial applications. C. B. Ford '40, W. Fishwick '43.

3. **Water Running Up Hill:**
   This is another application where the laws of Mother Nature have been temporarily abandoned. E. H. Ahlvin '40, R. M. Roney '40.

4. **Swinging Pendulum:**
   This pendulum swings at a constant rate, and it has apparently nothing to drive it. Simple magnetic attraction and a resonant circuit is the answer. The coil repels the pendulum on the outswing as much as it attracts it on the inswing. L. H. Johnson '41, A. G. Janos '41, D. C. Wycoff '41.

5. **Electric Chair:**
   Stand back please! See a man that LIVES after being subjected to the high voltage of the Electric Chair! C H. Sweitzer '43, J. J. De Jonghe '43, R. M. Sinks '40, L. S. Liewinko '41.

6. **Kissometer:**
   An impartial and a scientific measurement of an osculation (kiss to you). Bring your own girl friend, and the Electrical Show assumes no responsibility. G. B. Richards '42.

7. Tin Can Motor:
Save your old tin cans—they may be made into motors. W. E. Mazur '40.

8. Wizard of Oz:
First personal appearance. Knows all, tells all! R. J. Anderson '40.

9. Three Phase Fields:
Why does the iron ball, when thrown into the ring, spin rapidly and still defy gravity? A number of interesting effects can be demonstrated easily. E. H. Hammerstein '42, W. W. Welbourne '41.

10. Barber-Coleman Company Exhibit:
This is a working model of an inductive control for garage doors; also motor driven valves mounted for push button operation. R. C. Stiles '41.

11. Bucking Bronco Motor:
Harder to handle than an Arizona Mustang. Watch the sign light up when it bucks. Many theories have been offered to explain the action of the motor. What's your suggestion for "Breaking it in?" A. D. McRae '41.

12. Century Electric Company Exhibit:
This large motor has been especially cut away and prepared so as to show the operation of a polyphase unit. H. F. Harman '40.

13. Automatic Motor Control:
Step right up and see how a large motor can be controlled automatically. Try it yourself and see how simple it is. Thyratrons control a large amount of current, and hence can control a lot of power. W. R. Travers '40.

14. Educational Electric Company Exhibit:
Here are various applications of polyphase equipment which employs traveling magnetic field principles. See the Electric Gun, the Ring Motor, and Remote Control. W. J. Krug '40.

15. Pinch Phenomenon:
A striking demonstration of the magnetic effects of a current flowing in a conductor. A. S. Cox '40.

16. Broken Down Insulator:
If you thought that glass was an insulator, step right up and see this demonstration. Then go back and correct your physics instructor. A. S. Cox '40.

17. Radio Controlled Car
See a model truck which is completely controlled by radio. See it start, stop, reverse, and turn. There are no external connections to it, the control being a small transmitter which can be located several feet from the truck. The receiver unit is located in the truck. A. R. Johnson '41, R. C. Stiles '41, W. S. Lorenz '41.

18. Voice Mirror:
This apparatus was loaned to us by Illinois Bell Telephone Company. Speak into the phone, and a few seconds later, hear your voice come back to you exactly as you spoke into the phone. R. G. Titley '40.

19. Magnetostriction Oscillator:
These oscillations depend upon the mechanical vibrations of a rod. Several harmonics may be obtained. W. P. Bollinger '40.

20. Electronic Music:
These are models of the Hammond Organ and the Electrone, which demonstrate the versatility of electronic instruments in obtaining infinite effects through electronic variation of harmonic content and tone envelope. J. W. Gratian '41, R. A. Hammar '42.

21. Speech Scrambler:
Learn a comparatively new language and become one of the very few who can interpret this dialect. You will find it is a real treat to hear your speech literally "turned upside down." Can you make it come out right? V. W. Mahill '41, C. D. Morrill '41, J. P. Morris '41.

22. Reflex Action Timer:
Here you can have your reaction time tested. Compare it with your friends,' and see if you are naturally quick or slow. The indicating meter gives your answer in hundredths of a second. R. Ballard '42, H. Toomim '40.

23. Vibrating Springs:
Step right up folks, and see the show! See the slow motion effects which can be obtained with vibrating springs and a mechanical stroboscope. H. T. Hodges '41, E. H. Hammerstein '42.

24. Sound Recording:
Demonstrations will be made with some of the best available apparatus for sound recording. This equipment is used in a modern broadcasting station. H. Duszak '40, E. H. Mueller '40, A. P. Rugg '40.

25. Electricity of the Nervous System:
This exhibit pertains to the electrical phenomenon of the nervous system, and it is sponsored by the Psychology Department. H. K. Foute '40, R. W. Galke '41.

26. Electric Piano:
Another demonstration of the ways in which electricity may be applied to music. The effects obtained are very interesting. R. A. Hunt '42, F. K. Johnson '42.

27. Reaction Meter:
How fast can you get off your fast one? This electronic device measures your reaction time and a baseball's velocity. R. Ballard '42, H. Toomim '40.

28. Super Sonic Vibrations:
Demonstration of a quartz crystal vibrating under oil at an ultra-high radio frequency. L. Rosenman '40.

29. Lumigraph:
The intricate patterns of light are produced by changes in the rate of electrical discharge through a small tube of neon gas. H. Duszak '40.

30. Oscilloscope Patterns:
The Lissajous figures are produced by two waves which control the electron stream to the Oscilloscope screen. A number of different patterns can be made by varying the intensity and frequency of the waves. H. Duszak '40.

31. Lighting of the Water Purifier:
As you walk across the roof of the Electrical Engineering Building, don't fail to notice the beautiful patterns which are formed by the colored lights playing on the water fountain. R. H. Rann '40, J. C. Buechel '40.

32. Visual Demonstration of Sound:
See your voice pattern as shown on the screen of the oscilloscope. Compare the shape of your voice with that of your friends. Also, see the demonstration of radio frequency tones. R. B. Schmidt '41, Bill Slocum '43.

33. Transmission of Sound by Light:
Speak into a flashlight and hear your voice picked up and amplified through a speaker. There is no external connection to the flashlight; your voice varies the intensity of the beam and the amplifier interprets the light variations. O. R. Berger '40, J. L. Jones '40.

34. All Band CW Phone Transceiver:
A portable combination radiotelephone-telegraph transmitter such as is used by amateur radio operators for emergency use. This transmitter will be located on the campus and will be used to communicate with other short-wave stations. F. W. Rhine '41, J. L. Simmons '41.

35. Frequency Modulation:
Here is some apparatus which will demonstrate the principles of the newest development in radio. G. M. Kirkpatrick '41.

36. Stroboscope Tachometer:
Many interesting effects can be obtained with the stroboscope. Read a newspaper rotating at 1,800 rpm! L. Rosenman '40.

37. Signal Corps Apparatus:
This exhibit shows the latest types of transmitting equipment used by the signal corps, including portable pack type instruments for field use and training equipment for code. D. F. Hazen '40.

38. Radio Station W9YH:
This is an amateur radio transmitter, complete in every detail. Messages will be sent, via short wave, to any place in the United States. Just hand your radiogram to the atendant in Synton's booth, and then watch him send it out over the air. Synton, National Radio Fraternity.

39. Singing Arc:
Everyone has seen a carbon arc but have you ever heard one play a tune? By connecting the arc in a simple resonant circuit it is possible to obtain a crude sort of musical note. Come over and play it yourself! A. Shulman '41, G. Ruffner '41, G. L. McArthur '41.

40. 1000-Watt Transmitter:
This is the old radio transmiter for station WILL, and it is free to be inspected. Synton.

41. Radio Beam Propagation:
This is a demonstration of a five-meter radio beam produced and received with directional antennas. It uses one driven antenna, and one director, and one reflector. Synton.

42. Color Organ:
This is one of the most beautiful exhibits of the show. As the music plays, different colors appear in harmony with the music. Here you may see light fantastic, a symphony in color! Step in and rest a while. J. L. Murphy '40, N. C. Colby '40, P. A. Bauman '40.

43. The Theremin:
You do not have to touch this organ to play it. Simply by moving his hands through the air about this instrument, the operator can obtain any note which he desires. C. J. Carson '41.

44. Automatic Drinking Fountain:
Step right up folks, and have a drink of water from this fountain! But don't be fooled! R. E. Kuehn '41.

45. Cold Stove:
Presenting a new way to prepare meals—what heats the iron skillet? Put your hand around the stove, and it does not get warm. C. A. Kilmer '40, D. F. La Hue '40.

46. Magnetic Bowling Alley:
You can't help putting English on the balls in this alley—but the English does not always help! S. C. Powers '40, W. T. Reace, Jr. '42.

47. Texas Fire Water:
But no hooch from the Lone Star State was ever as hot as this! C. F. Wayham '40, M. Estrin '42.

48. Jacob's Ladder:
This is in reality an escalator, but the rungs are too frail to support much weight. Care to have a ride? W. F. Fickie '41.

49. Rotating Electric Sign:
This sign is used for publicity, and it is located on the south edge of the Electrical Engineering Laboratory. Watch it spell out the words, "See the Electrical Show." F. J. Korona '41, J. L. Adams '41.

50. Selsyn Operation:
See how shaking hands by remote control is accomplished! H. D. Townsend (Grad), J. G. Rehwald '42.

51. Flourescent Lamp Exhibit:
Here are several types and applications of flourescent lamps. They were loaned through the courtesy of General Electric Co. R. L. Keiffer '40, N. L. Ray '42.

52. Weston Electrical Instrument Exhibit:
This is an exhibit of electrical measuring instruments, photometers, and thermometers. Mr. Carl Miller, company representative.

53. Ring the Peg:
Here's a variation of the old carnival game that can't be beat! Step right up and try your luck! R. O. Maze '40, R. E. Pettit '43.

54. Cashier's Cage:
Just try to hold up this bank! The versatile photo electric cell is again at work. Loaned through courtesy of Westinghouse Electric and Manufacturing Co. J. E. Johnson '40, E. C. Tudor '41.

55. Spencer Disc Display:
What keeps these discs in action all of the time? They jump, first to one side, and then to the other. Loaned through the courtesy of Westinghouse. J. E. Johnson '40, E. C. Tudor '41.

56. Stroboglow:
Lighting Patterns, loaned through the courtesy of Westinghouse. J. E. Johnson '40, E. C. Tudor '41.

57. Demonstration of Motor Operation:
By means of a stroboscope, the differences in operation between induction type motors and synchronous motors can be shown. W. A. Pond '40.

58. Electrical Feeders:
Four feeders mounted in a closed circuit. Loaned by Jeffrey Manufacturing Company. F. W. Linder '40.

59. Perpetual Motion:
Come and see it, but don't believe it. R. M. Sinks '40, E. F. Koplin '43, L. J. Maurer '43.

60. Motor Overload Protection:
Here are demonstrations of devices used for motor overload protection. Loaned through courtesy of Wagner Electric Company. R. L. Feik '40, G. C. Dacey '42.

61. Lie Dectector:
Very few people can beat a lie detector. Come in and test your self-control. C. T. Damaske '41, G. D. Dannevik '41.

62. Sign Flashing Equipment:
Three panels with Sign Flashing Equipment. Such apparatus controls the large "Talking Signs" familiar in a large city. Loaned through the courtesy of Sangamo Electric Company. F. J. Thoma '40.

63. World's Smallest Electric Motor:
This small direct current motor is less than one-eighth of an inch high, and yet it actually runs! J. F. Tracy '40.

64. Man Power Indicator:
Step up and test out your strength! The results are often surprising. R. M. Sinks '40, G. C. Desmond '43.

65. Powercaster:
Power will be sent through the air in the future. See this amazing demonstration. F. E. Toler '42.

66. Cost of Electricity:
All housewives should see this exhibit. See how many cents it takes per hour to run a washing machine, a vacuum cleaner, an electric refrigerator, a toaster, etc. Also see how they affect the operation of your meter. F. J. Thoma '40, J. Vasconcellos '40, D. H. Anderson '43.

67. Relay Panels:
These panels show various protective relays used on transmission lines to protect them from lightning. J. Vasconcellos '40, F. J. Thoma '40, L. H. Gamp '43.

68. Hot Air Meter:
A quantitative measure of "Hot Air." Compare yours with that of your friends! J. Vasconcellos '40, F. J. Thoma '40, E. S. Kindell '43.

69. Delayed Speech:
To show you that it takes time for sound to travel from one point to the other, we have made the path so long that it takes one second for the sound to get back to the speaker. R. J. Smith '41, G. B. Bliss (Grad).

70. Electric Arc Welding:
Here is a demonstration of the process of Electric Arc Welding. S. F. Frischauf 41.

71. Everflowing Wine Bottle:
How does it work? The bottle is supported in thin air, and yet a stream of wine flows from it at all times. Here is one to ask your friends about! K. B. Utsinger '42.

72. Radio Frequency Tesla Coil:
Here the vanishing needle stunt can be worked. A shower of sparks, a red glow, and they vanish! They make splendid sparklers. H. D. Townsend (Grad).

73. Floating Bulbs:
Explain this one if you can! The small neon bulb is placed out in thin air with nothing surrounding it, and yet it keeps its position and also remains lighted! R. C. Kuder '42, H. D. Townsend (Grad).

74. Automatic Door Opener:
As you approach the door, you interrupt a light beam. This changes the amount of light falling on a phototube, and it initiates the circuit operation which opens the door. D. E. Nelson '41.

75. Public Address System:
The main Public Address system which is connected to each of the four buildings consists of four student built amplifiers and eight speakers. F. Marriett '41, D. W. Button '43, J. D. Adkins '42.

76. The Illumination Laboratory:
This is one of the most complete illumination laboratories in use today. Downstairs in the photometry laboratory you may inspect equipment and apparatus with which advanced research problems in illumination are carried on. The distribution photometer, intergrating spheres, and a student built icosahedron may all be seen.
Upstairs in the auditorium, demonstration lectures will be given at intervals throughout the show. On the lecture platform will be a small stage, on which striking lighting effects will be achieved, using built in lights and a complete control panel for that purpose. The lecture will be demonstrated with and will feature "Magic Wands," which are long slender neon tubes each of which glows in a particular color. The effects are very striking.
This lecture will be one of the highlights of the show, and it is something which no one should miss. W. F. Tracy '40, W. J. Reid '41, J. A. Kaelin '41.

77. The High Voltage Laboratory:
This laboratory is used to carry on High Voltage work at the University. Here you may see the huge Tesla Coil, which was under construction for a year and a half, and which was only recently completed. Using potentials of several million volts, lightning discharges may be made to dance across a ten foot gap. J. F. Tracy '40, R. H. Tutein '43, J. H. Gamble '42, R. R. Bush '40.
Also, the surge generator will be demonstrated, which builds up a high potential by charging condensers in parallel and discharging them in series. J. D. Hansen '40.
Complete demonstrations will be given at regular intervals throughout the show.

Physics Exhibits

The Engineering Physics Club has for its members all of the students enrolled in the Engineering Physics course. The Club is organized for the purpose of coordinating the efforts of, and securing the cooperation of, the Engineering Physics students in the design and construction of the exhibits for the Electrical Show. The Club, through its informal meetings with members of the Physics Department, affords the Engineering students an opportunity to become acquainted with men who are engaged in research in many branches of Physics. The members of the Club cordially invite you to visit their exhibits in the 1940 Electrical Show.

78. Lecture Demonstration:
A striking illustrated lecture on: active nitrogen, positive ray tubes, cathodless discharge tubes, cold cathode rectifier, molecular bombardment, cloud chambers, and lecture table preparation of liquid oxygen. M. P. Vore (Grad), G. C. Baldwin (Grad), R. J. Burke '40, N. C. Colby '40, F. K. Tallmadge '40.

79. Glass Blowing:
In experimental research it is often necessary to construct intricate pieces of apparatus entirely of glass. This exhibit will feature actual construction of some of this apparatus. A. H. Colbey (Dept).

80. Van de Graff:
By means of a balloon fabric belt, charges are carried up through the insulating column into a large metal sphere, producing potentials in the neighborhood of 500,000 volts. These generators are used in nuclear disintegration experiments,

high potential vacuum tube work, and in corona and electrical surge investigations. F. K. Tallmadge '40. R. K. Babbitt '40.

81. Speech and Choral Calisthenics Without a Larynx:
An electroacoustical system is submitted for the human larynx. Pitch and volume are variable, so that great flexibility is possible. Can you talk like Popeye? Sing like a cello? D. W. Martin (Grad), C. Janney '41.

82. Stroboscope:
A light that flashes many times a second causes objects moving so rapidly as to be invisible in ordinary light to stop. This stroboscope has been designed to deliver more illumination than the average instrument. J. W. Utecht '40, C. J. Taylor '40.

83. Rocket:
Experimental demonstration of the possibility of interplanetary rocket transportation. R. J. Burke '40, J. F. Grove '40.

84. Snake Dance Discharge Tube:
See the fantastic gyrations of a column of ionized vapor when subjected to a magnetic field. This demonstration illustrates a probable explanation of "ball lightning." C. Janney '41, J. Edmonds '41.

85. Flourescence:
A demonstration of the flourescent properties of solids, liquids, and gases under ultra-violet light. C. A. Fowler '42.

86. Penny Snatcher:
The careless person's bank! Leave your money lie and thieves cannot touch it. You try it! P. P. North '40.

87. X-Ray Tube:
Don't miss the chance to see through golf balls, oranges, your own hands, and other interesting demonstrations. R. K. Babbitt '40.

88. Lissajou's Figures:
"Tracks in the sands of time!" This demonstrates the motion of a particle subject to two periodic motions. D. Gerberich '41.

89. Electrostatic Exhibit:
An interesting display of electrostatic machines driving various devices including: electrostatic motor, windmill, oscillating pith balls, tassels, etc. H. R. Patton '40.

90. Spinning Coin:
The coin spins continually without visible driving force! Can you tell why? P. P. North '40.

91. Spinning Chair:
The one-man merry-go-round . . . and you can adjust your own speed! L. Birks '42.

92. Cyclotron:
This apparatus is one of the famed "atom smashers" used to accelerate ions for nuclear research. These accelerated ions, upon striking targets of various elements, cause nuclear disintegration and induce artificial radio-activity. Dr. Lyman, F. W. Stallman (Grad).

93. Linear Accelerator:
Another type of "atom smasher" for nuclear disintegration. The electrons are

liberated at the bottom in this type of accelerator and "fall upwards," being intercepted at the top for investigation. Dr. Manley, Dr. Haworth, E. A. Luebke (Grad), M. P. Vore (Grad).

94. Gravity Defied:
Light bulbs, screw drivers, and metal balls dance in mid-air. Can you tell us why? J. R. Engstrom '40.

95. Polarized Light:
This is a visible demonstration of the stresses under load of bridge structures, etc. P. Bey '42, R. J. Debs '42.

96. Hertzian Waves:
The production and reception of electromagnetic waves. R. K. Babbitt '40.

97. Human "Horsepower":
How much power do you have? Ride a bike for a minute and find your "horsepower." L. Birks '42.

98. Eddy Current Brakes:
If you don't believe that a magnetic field can act as a brake, try turning this wheel! J. R. Engstrom '40.

99. Perpetual Motion:
Is perpetual motion impossible? See this exhibit and tell us what you think. C. M. Johnson '40.

100. Crowd Counter:
In the first floor hallway is mounted a scale giving the exact number of people in the building at any time. This is accomplished automatically by the aid of photo-electric cells. M. Lebovits '40.

101. Wire Wrapper and Ring Thrower:
A demonstration of the interaction of magnetic fields. J. R. Engstrom '40.

102. Shoot the Monkey:
Come and shoot the monkey! See how you can hit him even when he jumps. R. Henderson '41.

103. Illumination of Flowers by Colored Light:
How do your favorite flowers appear under colored light? Come and investigate. C. A. Fowler '42.

104. Elliptical Pendulum:
An old carnival favorite! Come and try it again—it's free—don't pay a cent. R. Henderson '41.

105. Radio Controlled Airplane:
See this model airplane go through its paces, even while there are no external connections. This stunt is accomplished with a transmitter as the controlling unit. W. E. Good (Grad), J. D. Shnable '40.

Exhibits of the Railway Club

The exhibits of the Railway Club are made possible through the cooperation of the Railway Engineering Department. The following students had a part in the display, and they will be eager to answer your questions at the show:

G. H. Adams '40
M. E. Budgell '40
T. P. De Wan (Grad)
H. D. Eglin '40
M. R. Harvey '41
W. Higginbotham '43
R. A. Rayer '41
T. C. Shedd, Jr. '40
R. M. Stacy '42
Kirk Taylor '41
R. L. Williams '40
R. H. Anderson '43
D. F. Lyons '40

106. Magnetic Track Brake:
This brake, used on modern street cars, grips the rail by magnetic action. This is the most modern development in street car braking. G. H. Adams '40, M. E. Budgell '40.

107. Eddy Current Clutch:
This is a non-contact clutch using slip to obtain a constant speed output from a variable speed drive. G. H. Adams '40.

108. "HO" Gage Model Railroad:
Models are 1-87th full size. Two trains running on a double oval track. Built to exact scale, 3.5 mm. to 1 foot. T. C. Shedd, Jr. '40, H. D. Eglin '40.

109 "O" Gage Model Railroad:
Freight train on oval track. Miniature signals are arranged showing standard practice in signalling a turnout. Built to exact scale, ¼ in. to 1 foot. M. R. Harvey '41.

COMMERCIAL CONTRIBUTORS

The management of the 1940 Electrical Show wishes to express its sincere appreciation for the cooperation it has received from the following companies:

General Electric Company
Westinghouse Electric and Manufacturing Company
Sangamo Electric Company
Illinois Bell Telephone Company
Micro Switch Corporation
Weston Electrical Instrument Corp.
Educational Electric Mfg. Company
Federal Electric Company, Inc.
Morris L. Hecker Company
Barber-Coleman Company
Jeffrey Manufacturing Company
Wagner Electric Company
Century Electric Company
Illinois Iowa Power Company
Radio Doctors

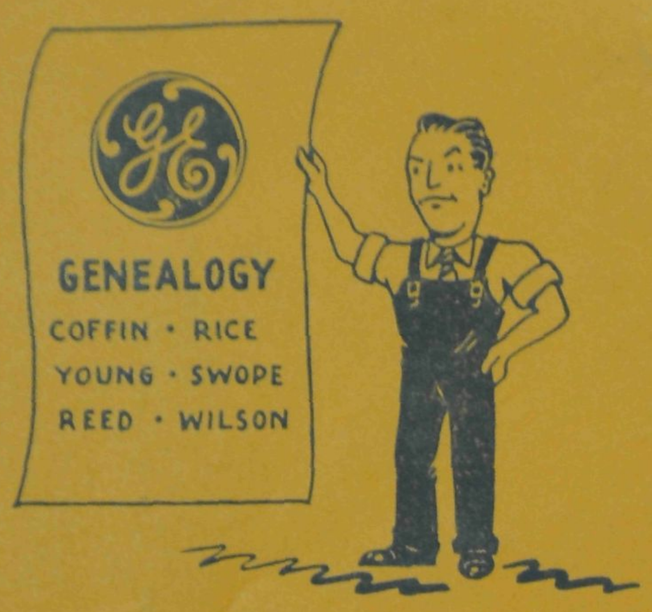
Exhibits loaned by these companies have done much to add to the magnitude and glamour of the show.

HAM FORUM

For the past several years, Synton, National Radio Fraternity, has sponsored a meeting of Amateur Radio enthusiasts. This year Synton has arranged a meeting, to be held at 1 p. m. Saturday, March 30, in room 215 E. E. Lab. Radio Station WILL will broadcast at 1:15 "Ham Forum" from the stage of 215 E. E. Lab, which is to be followed by addresses by several alumni of the University who are out in the radio field. This meeting will last for one hour and will be dismissed at 2 p. m.

Synton's radio station, in room 236 of the Armory, will be open during the show. You are invited to inspect this station. Arrangements have been made for a general get together session for all amateurs at a dinner Saturday night. The time and place will be announced later.

G-E Campus News



THIRD GENERATION

GENERAL Electric became a proud grandfather this year, when Charles E. Wilson became president and Philip D. Reed chairman of the board of directors—the third generation of G-E leaders. They will carry on as "captain" and "navigator" of General Electric in place of Gerard Swope and Owen D. Young, who held these positions from 1922 until their retirement at the first of this year.

Mr. Young and Mr. Swope leave behind them a brilliant record of achievement. Under their leadership General Electric fostered a great new branch of the electrical industry—the manufacture of appliances which eliminate the drudgery of housework and create comforts and conveniences for the home.

Through their efforts General Electric's many employee plans were achieved—old-age pensions and group life insurance, a wage-adjustment plan to meet increases in the cost of living, vacations with pay, an employee savings plan and many others—ample evidence that these executives were many years ahead of their time in vision and consideration for the welfare of their employees.

SIMPLIFIED BALANCING

HOW about balancing a 50-ton generator rotor turning at 3600 rpm? No, not on the end of your chin or anything like that, but balancing it until its vibration is less than three ten-thousandths of an inch—or one-tenth the diameter of a human hair! Not so easy, you say? Well, a little while ago you would have been right, for the balancing of a large rotating machine was a long-drawn-out procedure, perhaps requiring the removal of the rotor from the machine.

But today there is a G-E portable instrument that does the job simply, quickly, and under actual operating conditions. A 20,000-kva synchronous condenser, for example, can sometimes be balanced in as few as three runs—a far cry from the 100 to 170 trials which were frequently necessary before.

GENERAL ELECTRIC

90-289F